

REMARKS

A. Status of the Claims

Claims 1-32 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent Nos. 5,985,798 (Crudden) and 5,710,103 (Magin et. al.).

B. The Pending Claims

Independent claims 1 and 15, respectively, are directed to a method of enhancing herbicidal activity of a glyphosate composition, and a composition, comprising: (a) glyphosate; (b) a cationic or protonatable amine first surfactant having a C₈₋₂₄ hydrocarbyl group; and (c) a second surfactant of the formula shown in claim 1, including an N-acylsarcosinate, having a C₇₋₂₃ group; at a total surfactant:glyphosate a.e. weight ratio range of 1:30 to 2:1, and a first surfactant to second surfactant weight ratio of 1:10 to 10:1.

C. Rejection Under 35 U.S.C. §103(a)

The Office maintains that it would have been obvious to one of ordinary skill in the art to determine optimum ratios, that one would have been motivated to do so in order to develop the most effective composition, and that the applicant must show the criticality of the claimed ratio range to overcome the rejection.

Crudden describes compositions consisting essentially of glyphosate and an N-acylsarcosinate adjuvant. Crudden provides a general disclosure of sarcosinate compatibility with a generic list of cationic, nonionic and amphoteric surfactants including quaternary ammonium compounds and lauryl dimethyl amine oxide (col. 2, line 63 - col. 3, line 4) but does not describe or suggest ratios of sarcosinate and amine surfactants or glyphosate efficacy enhancement by such surfactants.

Magin et al. describe glyphosate compositions containing a C₈₋₂₂ dimethyl amine oxide surfactant and a quaternary ammonium halide surfactant having 8-40 carbon atoms in total. This surfactant combination is said to enhance efficacy of glyphosate. Sarcosinate surfactants are not taught or suggested. The Office maintains that because Magin does not exclude sarcosinate surfactants one of ordinary skill in the art would have been motivated to combine Magin and Crudden to arrive at the claimed invention.

In the Office action, it is asserted that it would have been *prima facie* obvious for one skilled in the art to determine optimum ratios of surfactants. However, before the determination of the optimum or workable ranges of a particular variable might be

characterized as routine experimentation, **the variable must first be recognized in the art as a variable which achieves a recognized result** (See MPEP §2144.05(II)(B) citing *In re Antoine*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). None of the art relied on recognizes that sarcosinate surfactants enhance glyphosate efficacy, or that the ratio of sarcosinate surfactant to amine surfactant is effective in enhancing glyphosate efficacy. **In the absence of any indication in the art relied on that the surfactant ratio is a result-effective variable, there is no basis for the optimization of this variable as proposed in the Office action.** Accordingly, no *prima facie* case of obviousness has been established, and the Office has impermissibly shifted the burden of evidence to the applicant in requiring evidence of criticality.

More specifically, Crudden provides a general disclosure of sarcosinate surfactant compatibility with a generic list of cationic, nonionic and amphoteric surfactants including quaternary ammonium compounds and lauryl dimethyl amine oxide (col. 2, line 63 - col. 3, line 4) but does not describe or suggest a ratio of surfactants or any benefits or advantages, other than compatibility, associated with the surfactant combination. In particular, Crudden does not suggest that the disclosed surfactant combinations can enhance herbicidal activity as is instantly claimed; compatibility is all that is taught. Crudden provides no motivation or suggestion to one skilled in the art to combine the claimed surfactants in a ratio range of 1:10 to 10:1 to enhance glyphosate herbicide activity. The instantly claimed ratio was unknown at the time of the invention and cannot form a proper basis for rejecting the claims as being obvious. Crudden describes no surfactant ratio.

Magin does not teach, disclose or even suggest sarcosinate surfactants. Nonetheless the Office maintains that because sarcosinates were not excluded, Magin provides motivation for their inclusion. The Office has not offered any evidence as to why Magin suggests sarcosinate surfactants; as support the Office merely states that "Margin (sic) does not teach that no other surfactant can be used in his invention besides those in his specification." Without any knowledge of the efficacy enhancement by the surfactant combination or the interrelationship between the surfactants, one skilled in the art would have been unable to optimize these variables, particularly in the manner of the pending claims, without improper hindsight analysis using the teachings of applicant's specification.

The Applicant respectfully submits that the Office has failed to establish that claims 1-32 are *prima facie* obvious in view of the cited references in combination, and claims 1-32 meet the requirements for patentability under 35 U.S.C. §103(a) and are in

condition for allowance. Specifically, there is no teaching, suggestion or motivation, either explicitly or implicitly in the Crudden and Magin et al. references or in the knowledge generally available to one of ordinary skill in the art, to combine those references to arrive at the claimed invention. Magin adds nothing to Crudden and does not solve the deficiencies of Crudden. In particular, Magin does not suggest: (a) that the instantly claimed first and second surfactant combination can increase glyphosate herbicidal activity; or (b) any weight ratio of first to second surfactant. As stated in the MPEP, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination."¹ It is respectfully submitted that Crudden and Magin et al. do not teach or suggest the claimed surfactant combination at the claimed ratio for the enhancement of glyphosate herbicide activity, hence there is no recognition, expressly or impliedly, in their teaching that some advantage or expected beneficial result would have been produced by their combination.

Without reference to the teaching of the instant invention, one would not have had a reasonable expectation of success in enhancing herbicidal activity by combining the claimed surfactants. Therefore, the combination of references, when viewed by one skilled in the art, would at best have been obvious to try, which without reasonable expectation of success is an improper standard for rejection under 35 U.S.C. §103(a). "The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art as it existed at that time."² Moreover, it is improper to use the claims as a frame from which individual naked parts of separate prior art references may be employed as a mosaic to recreate the claimed invention.³ The cited art is silent, and does not even suggest the surfactant combination in the claimed ratio, much less its glyphosate enhancing effect. The law requires not merely a rational hope, but a concrete basis to expect success.

The Office suggests that when the prior art discloses/suggests all components of the composition without a description of ratios, Applicant must show the criticality of the claimed ratio range. It is respectfully submitted that the Office must first establish a case of *prima facie* obviousness before the burden shifts to the Applicant to show the

¹ Quoting MPEP §2143.01 at page 2100-124.

² quoting *Interconnect Planning Corp. v. Feil* 227 USPQ 543 at 547 (Fed. Cir. 1985).

³Id. at 551.

criticality of the claimed range. In this case the Office has failed to make a *prima facie* case hence the Applicant need not demonstrate criticality of the weight ratio of a cationic or protonatable amine first surfactant to sarcosinate second surfactant of 1:10 to 10:1.

Applicant nonetheless points out that criticality of the surfactant ratio is demonstrated by examples 1 and 2⁴ which disclose formulations containing both a cationic or protonatable amine first surfactant and a sarcosinate second surfactant at evaluated weight ratio ranges between 3:1 and 1:3 enhance glyphosate herbicidal activity as compared to either surfactant alone but in the same total surfactant amount. Moreover the specification at page 5, lines 5-20 and page 9, lines 10-11 discloses glyphosate herbicide enhancement over a surfactant weight ratio range of between 10:1 and 1:10.

Respectfully submitted,



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⁴ See the instant specification at page 16, lines 1-7 and page 17, lines 1-9.